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New records of anurans in the state of Maranhão, Brazil: *Hypsiboas boans* (Linnaeus, 1758) (Hylidae) and *Leptodactylus syphax* Bokermann, 1969 (Leptodactylidae)

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ABSTRACT: We report two new records of anurans in the northeastern region of the state of Maranhão, Brazil. The records extend the distribution of *Hypsiboas boans* (Linnaeus, 1758) outside the Amazon basin, and represent the first record of *Leptodactylus syphax* Bokermann, 1969 for the state of Maranhão.

The great diversity of anurans in Brazil (SBH 2012) contrasts with the current loss and degradation of natural habitats and with the scarce knowledge of the taxonomy, biology and geographic distribution of many species. Geographic data are one of the most important criteria used to assess the conservation status of species (Bressan *et al.* 2009). But voucher specimens and the verification by taxonomists of species determination are imperative to avoid misleading conclusions.

In this study we report two new records of anurans based on individuals collected in the Cerrado environment of the northeastern state of Maranhão, Brazil (Figure 1). These records extend the current geographic distribution of *Hypsiboas boans* (Linnaeus, 1758) eastward. The distribution of this species was limited to the Amazon basin and has now expanded to the Cerrado biome in the northeastern region of the state of Maranhão. Also this is the first record of *Leptodactylus syphax* Bokermann, 1969 for the state of Maranhão. The identifications were confirmed by the experts Dr. Ulisses Caramaschi and Dr. Marcelo Felgueiras Napoli, after comparisons with specimens deposited at the Museu Nacional, municipality of Rio de Janeiro, Brazil (MNRJ), and Museu de Zoologia da Universidade Federal da Bahia, municipality of Salvador, Bahia, Brazil (UFBA). The Instituto Chico Mendes de Conservação da Biodiversidade – ICMBio (License number 20896-1) provided permit to collect specimens. Voucher specimens were deposited in the Museu de Zoologia da Universidade Federal da Bahia (UFBA 10383: *L. syphax*; UFBA 11124-11126: *H. boans*).

Hypsiboas boans, described from "America", is considered a large hylid (adult males 101-128 mm SVL, and adult females 91-123 mm SVL) that is widely distributed in Brazil, Ecuador, Colombia, eastern Panama and Trinidad and Tobago. In Brazil, the species had only been recorded in the Amazon Basin (Lima *et al.* 2006; La Marca 2008; IUCN 2012). It is a nocturnal species found in tropical forests as well as in bushes and trees of gallery forests (La Marca 2008; IUCN 2012), and is not considered an endangered species by the IUCN (2012).

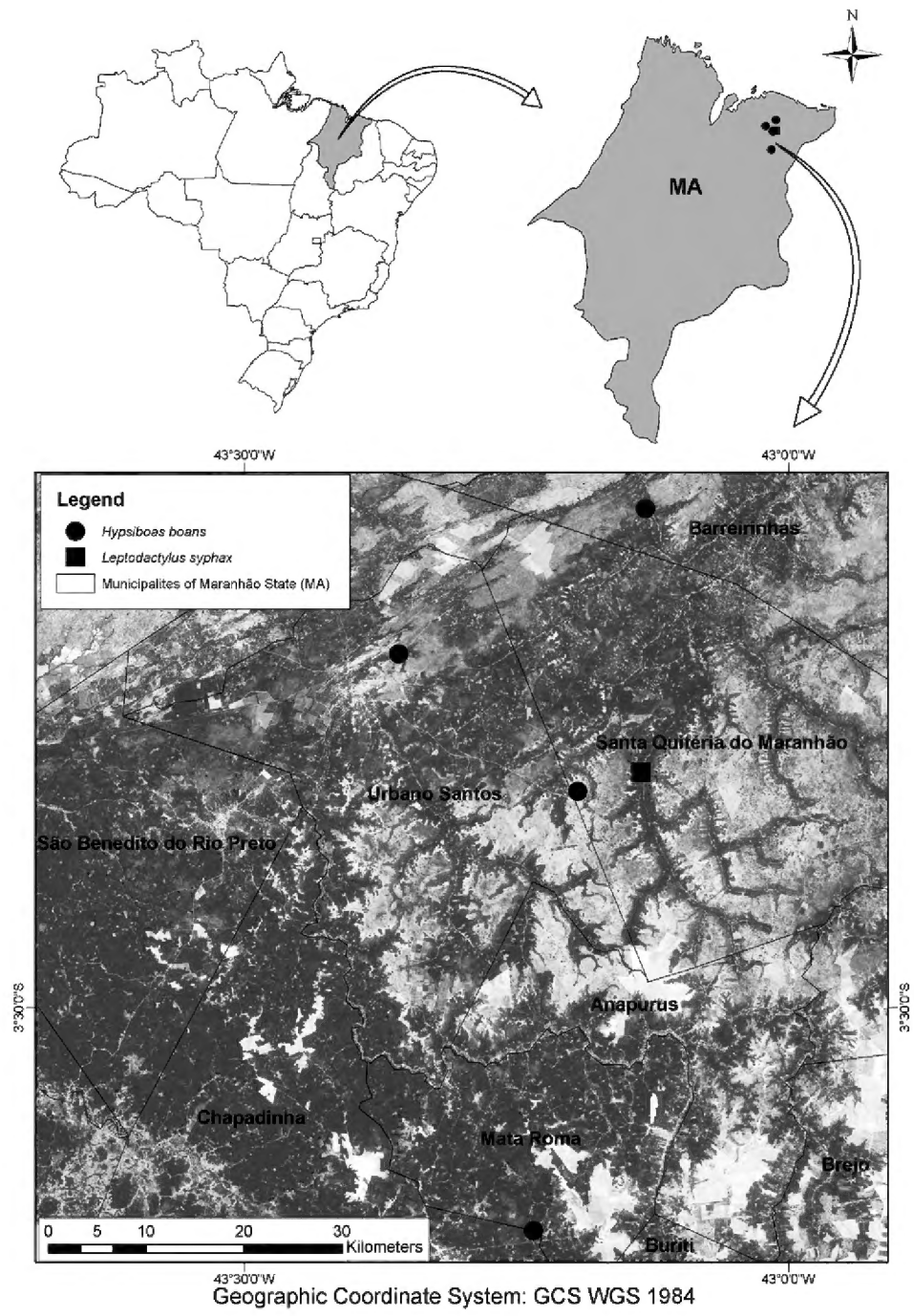

FIGURE 1. New records of geographic distribution of *Hypsiboas boans* (black circles) and *Leptodactylus syphax* (black square) in the northeastern region of the state of Maranhão, Brazil. The names refer to the municipalities, delimited by the black lines.

Specimens of *H. boans* were registered from four municipalities in the northeastern region of the state of Maranhão, between March and August 2010: Barreirinhas (3°02'29" S, 43°07'52" W; elevation: 39 m) on 29 March 2010 (adult female 102.7 mm SVL), Santa Quitéria do Maranhão (3°18'17" S, 43°12'35" W; elevation: 70 m) on 03 May 2010, Urbano Santos (3°10'31" S, 43°21'28" W; elevation: 65 m) on 15 March 2010 (adult male 92.8 mm SVL), and at the boundary between the municipalities of Chapadinha and Mata Roma (3°42'18" S, 43°14'02" W; elevation: 62 m) on 30 July, and on 15 August 2010. These new records expand its geographic distribution ca. 675 km northeastwards from municipality of Parauapebas (06°04'04" S, 49°54'07" W), state of Pará, Brazil (Pinheiro *et al.* 2012) to Urbano Santos municipality. All individuals were associated to slow lotic environments in gallery forests with palm trees ("buritizais"), with trees 10-15 m high. Although this species is not usual in altered habitats (La Marca 2008; IUCN 2012), in this study it was captured in disturbed areas. Pinheiro *et al.* (2012) also assigned the occurrence of this species in "antropic areas" in the Carajás region, Pará.

According to Rodríguez and Duellman (1994), during the dry season, individuals of this species are active at night on sandy or muddy edges of slow streams. In the state of Maranhão, we observed active individuals (Figure 2) during the rainy season (March to May), and in the early dry season (July and August). The eggs are laid in clay basins, which are built by the males on the edge of ponds or streams and, later, the tadpoles are dragged into the streams (Duellman 1997). We found clay basins with (Figure 3) and without eggs or small tadpoles in the early dry season in just one locality, Chapadinha-Mata Roma.

Leptodactylus syphax Bokermann, 1969 (Figure 4), described from São Vicente, Cuiabá municipality, state of Mato Grosso, Brazil, is considered a medium-sized leptodactylid, with adult males ranging from 58-83 mm SVL, and adult females from 70-90 mm SVL (Heyer *et al.* 2010). The tadpoles develop in lentic environments and are not well adapted to human disturbance (Heyer *et al.* 2004; IUCN 2012). It is included in the *Leptodactylus pentadactylus* species group (Heyer 1979), being found mainly in open and rocky areas in the central-west, southeast and northeast regions of Brazil, in the states

Figure 2. Unvouchered adult specimen of *Hypsiboas boans* recorded at the boundary between the municipalities of Chapadinha and Mata Roma in northeastern region of Maranhão state, Brazil. Photo: Maurício A. Mendonça (30/07/2010).

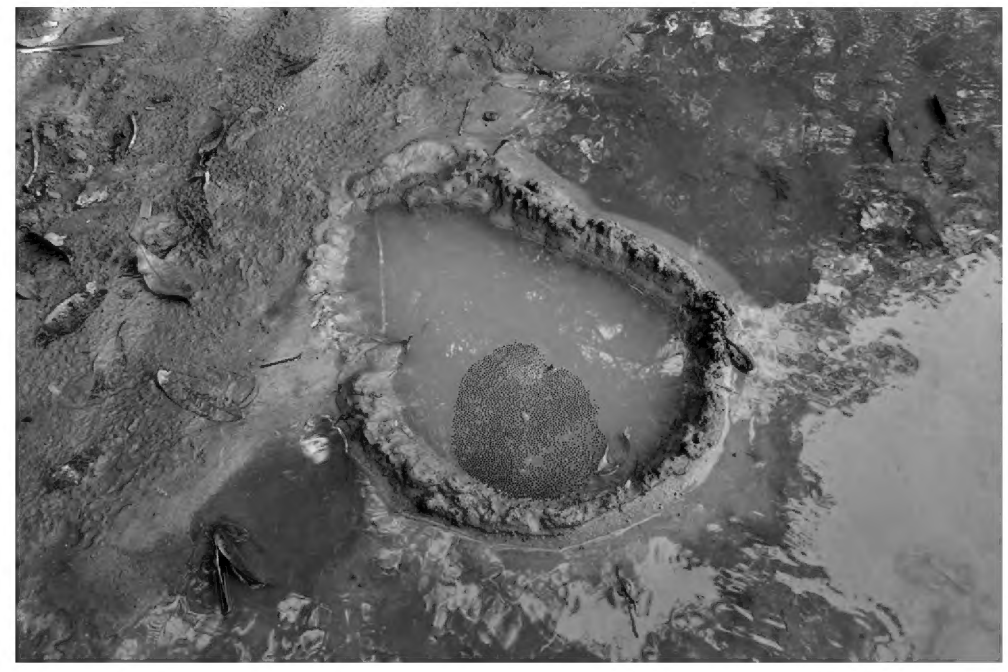

Figure 3. Nest and eggs of *Hypsiboas boans* at the boundary between the municipalities of Chapadinha and Mata Roma in northeastern region of the state of Maranhão, Brazil. Photo: Maurício A. Mendonça (07/08/2010).

Figure 4. Adult male specimen of *Leptodactylus syphax* (SVL = 67.1 mm) recorded in the municipality of Santa Quitéria do Maranhão, state of Maranhão, Brazil. Photo: Rodrigo Matavelli (07/04/2010).

of Minas Gerais, Mato Grosso, Goiás, São Paulo and Piauí, as well as southern Paraguay and eastern Bolivia (Heyer 1979; 1995; Cardoso and Heyer 1995; De La Riva *et al.* 2000; Silva and Facure 2007; Uetanabaro *et al.* 2007; Giaretta *et al.* 2008; Silva and Giaretta 2009; Martins and Silva 2009). The species was also recorded in rocky areas and small caves in the Serra da Bodoquena, and in underground ducts used for storm drainage in the city of Campo Grande, both in the state of Mato Grosso do Sul (Heyer *et al.* 2010). And exceptionally, *L. syphax* was recorded in area of "restinga" (a phytophysionomy of the Atlantic Forest biome typical of the sandy coastal plains) (Araujo *et al.* 1998) in the municipality of Presidente Kennedy, state of Espírito Santo, an area devoid of rocky outcrops (Heyer *et al.* 2010). Andrade *et al.* (2011) expanded the distribution of *L. syphax* in the state of Piaui, and provided a geographic distribution map, based on Heyer *et al.* (2010), including all these Brazilian states, and also Tocantins, Ceará, and Paraíba. Pinheiro *et al.* (2012) expanded the distribution of this species from the state of Tocantins to the metalophic savanna at Carajás National Forest, state of Pará. Currently, *L. syphax* is not considered an endangered species (Heyer *et al.* 2004; IUCN 2012).

Specimens of *Leptodactylus syphax* was registered in the municipality of Santa Quitéria do Maranhão (3°17'28"

S, 43°8'33" W; elevation: 30 m), filling a gap between the states of Piaui and Pará. We collected two individuals (Figure 4) on 7 April 2010 in the Cerrado environment, near of termite mounds. The new record is 1967 km north and east from the type locality of this species, and expands its geographic distribution in 192 Km north and west from the previous records at the Parque Municipal Cachoeira do Bota Fora (04°12'00" S, 41°39'60" W), Piripiri municipality, north region of state of Piauí (Andrade *et al*. 2011).

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